AMENDMENT

Amendments to the Claims: Please replace all prior versions and listings of claims with the following listing of claims.

1. (**Currently Amended**) A method for providing service level management, comprising:

providing a service over a network having a plurality of network components that support the service, wherein performance of the service depends upon performances of the plurality of network components that support the service, and wherein the service has a service parameter that represents the performance of the service;

monitoring, on a computing device, a plurality of component parameters for the plurality of network components that support the service, wherein the plurality of component parameters measure the performances of the plurality of network components that support the service;

mapping, on the computing device, the plurality of component parameters monitored for the plurality of network components to the service parameter that represents the performance of the service, wherein the service parameter mapped to the plurality of component parameters has a value that indicates whether the service conforms to an agreed upon service level identified in a service level agreement;

executing, on the computing device, one or more data mining algorithms to discover a subset of the plurality of component parameters that have a ~~greatest~~ most influence on the service parameter, wherein the discovered subset includes more than one of the plurality of component parameters having the most influence on the service parameter;

identifying, on the computing device, a function that defines a relationship between the value for the service parameter and the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter, wherein the function includes a one-to-many mapping between the value for the service parameter and the subset of the plurality of component parameters that have the most influence on the service parameter;

monitoring, on the computing device, the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter; and

determining, on the computing device, whether the service conforms to the agreed upon service level identified in the service level agreement from the monitored subset of the plurality of component parameters, wherein determining whether the service conforms to the agreed upon service level includes:

providing, on the computing device, values for the monitored subset of the plurality of component parameters to the function that includes ~~defines~~ the one-to-many mapping ~~relationship~~ between the value for the service parameter and the subset of the plurality of component parameters;

inferring, on the computing device, the value for the service parameter from the monitored values for the subset of the plurality of component parameters, wherein the function infers the value for the service parameter from the monitored values for the subset of the plurality of component parameters; and

determining, on the computing device, whether the inferred value for the service parameter indicates that the service conforms to the agreed upon service level identified in the service level agreement.

2. (**Cancelled**)

3. (**Previously Presented**) The method of claim 56, wherein determining whether the service conforms to the agreed upon service level further includes:

determining, on the computing device, that the service does not conform to the agreed upon service level in response to the inferred value for the service parameter failing to meet or exceed a threshold value identified in the service level agreement; and

controlling, by the computing device, the subset of the plurality of network components in response to determining that the service does not conform to the agreed upon service level, wherein controlling the subset of the plurality of network components includes executing one or more instructions on the subset of the plurality of network components until the value for the service parameter meets or exceeds the threshold value identified in the service level agreement.

4. (**Cancelled**)

5. (**Previously Presented**) The method of claim 3, wherein the one or more instructions control the values for the subset of the plurality of component parameters.

6-10. (**Cancelled**)

11. (**Previously Presented**) The method of claim 1, wherein determining whether the service conforms to the agreed upon service level further includes:

determining, on the computing device, that the service conforms to the agreed upon service level agreement in response to the inferred value for the service parameter meeting or exceeding a threshold value identified in the service level agreement; and

determining, on the computing device, that the service does not conform to the agreed upon service level in response to the inferred value for the service parameter failing to meet or exceed the threshold value identified in the service level agreement.

12. (**Previously Presented**) The method of claim 11, wherein determining whether the service conforms to the agreed upon service level further includes generating, on the computing device, a report indicating whether the service conformed to the agreed upon service level during a predetermined time period.

13-29. (**Cancelled**)

30. (**Previously Presented**) The method of claim 12, wherein the report includes the inferred value for the service parameter during the predetermined time period.

31-33. (**Cancelled**)

34. (**Currently Amended**) The method of claim 1, wherein the one or more data mining algorithms include a decision tree algorithm that comprises:

producing a decision tree that represents influences that the plurality of component parameters have on the service parameter; and

analyzing the influences represented for the plurality of component parameters in the decision tree to identify the subset of the plurality of component parameters that includes ~~have~~ the more than one component parameters having the most ~~greatest~~ influence on the service parameter.

35. (**Previously Presented**) The method of claim 34, wherein the decision tree includes numeric percentages that represent the influences that the plurality of component parameters have on the service parameter.

36. (**Previously Presented**) The method of claim 34, wherein the decision tree includes binary values that represent the influences that the plurality of component parameters have on the service parameter.

37. (**Previously Presented**) The method of claim 34, wherein the decision tree includes a root node that represents the service parameter, a plurality of leaf nodes that represent the plurality of component parameters, and a plurality of dependencies between the root node and the plurality of leaf nodes that represent the influences that the plurality of component parameters have on the service parameter.

38. (**Currently Amended**) The method of claim 56, wherein the function includes one or more arguments that define scheduled unavailability for at least one of the more than one network components in the subset of the plurality of network components.

39. (**Previously Presented**) The method of claim 1, wherein the identified function includes a fuzzy logic algorithm that comprises:

translating the monitored values for the subset of the plurality of component parameters into fuzzy concepts;

determining numeric grades of membership that the monitored values have in the fuzzy concepts; and

inferring the value for the service parameter from the numeric grades of membership that the monitored values have in the fuzzy concepts.

40. (**Currently Amended**) A system for providing service level management, comprising:

a network having a plurality of network devices that support a service provided over the network, wherein performance of the service depends upon performances of the plurality of network devices that support the service, and wherein the service has a service parameter that represents the performance of the service;

one or more electronic devices coupled to the network, wherein the one or more electronic devices are configured to:

monitor plurality of component parameters for the plurality of network devices that support the service, wherein the plurality of component parameters measure the performances of the plurality of network devices that support the service;

map the plurality of component parameters monitored for the plurality of network devices to the service parameter that represents the performance of the service, wherein the service parameter mapped to the plurality of component parameters has a value that indicates whether the service conforms to an agreed upon service level identified in a service level agreement;

execute one or more data mining algorithms to discover a subset of the plurality of component parameters that have a ~~greatest~~ most influence on the service parameter, wherein the discovered subset includes more than one of the plurality of component parameters having the most influence on the service parameter; and

identify a function that defines a relationship between the value for the service parameter and the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter, wherein the function includes a one-to-many mapping between the value for the service parameter and the subset of the plurality of component parameters that have the most influence on the service parameter;

at least one monitoring agent coupled to the network, wherein the at least one monitoring agent is configured to monitor the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter; and

a service analysis system coupled to the network, wherein the service analysis system includes one or more processors that determine whether the service conforms to the agreed upon service level identified in the service level agreement from the monitored subset of the plurality of component parameters, wherein to determine whether the service conforms to the agreed upon service level, the one or more processors are configured to:

provide values for the monitored subset of the plurality of component parameters to the function that includes ~~defines~~ the one-to-many mapping ~~relationship~~ between the value for the service parameter and the subset of the plurality of component parameters;

infer the value for the service parameter from the monitored values for the subset of the plurality of component parameters, wherein the function infers the value for the service parameter from the monitored values for the subset of the plurality of component parameters; and

determine whether the inferred value for the service parameter indicates that the service conforms to the agreed upon service level identified in the service level agreement.

41. (**Previously Presented**) The system of claim 58, wherein to determine whether the service conforms to the agreed upon service level, the one or more processors are further configured to:

determine that the service does not conform to the agreed upon service level in response to the inferred value for the service parameter failing to meet or exceed a threshold value identified in the service level agreement; and

control the subset of the plurality of network devices in response to determining that the service does not conform to the agreed upon service level, wherein controlling the subset of the plurality of network devices includes executing one or more instructions on the subset of the plurality of network devices until the value for the service parameter meets or exceeds the threshold value identified in the service level agreement.

42. (**Cancelled**)

43. (**Previously Presented**) The system of claim 41, wherein the one or more instructions control the values for the subset of the plurality of component parameters.

44-45. (**Cancelled**)

46. (**Previously Presented**) The system of claim 40, wherein to determine whether the service conforms to the agreed upon service level, the one or more processors are further configured to:

determine that the service conforms to the agreed upon service level agreement in response to the inferred value for the service parameter meeting or exceeding a threshold value identified in the service level agreement; and

determine that the service does not conform to the agreed upon service level in response to the inferred value for the service parameter failing to meet or exceed the threshold value identified in the service level agreement.

47. (**Previously Presented**) The system of claim 46, wherein to determine whether the service conforms to the agreed upon service level, the one or more processors are further configured to generate a report indicating whether the service conformed to the agreed upon service level during a predetermined time period.

48. (**Previously Presented**) The system of claim 47, wherein the report includes the inferred value for the service parameter during the predetermined time period.

49. (**Currently Amended**) The system of claim 40, wherein the one or more data mining algorithms include a decision tree algorithm that comprises:

producing a decision tree that represents influences that the plurality of component parameters have on the service parameter; and

analyzing the influences represented for the plurality of component parameters in the decision tree to identify the subset of the plurality of component parameters that includes ~~have~~ the more than one component parameters having the most ~~greatest~~ influence on the service parameter.

50. (**Previously Presented**) The system of claim 49, wherein the decision tree includes numeric percentages that represent the influences that the plurality of component parameters have on the service parameter.

51. (**Previously Presented**) The system of claim 49, wherein the decision tree includes binary values that represent the influences that the plurality of component parameters have on the service parameter.

52. (**Previously Presented**) The system of claim 49, wherein the decision tree includes a root node that represents the service parameter, a plurality of leaf nodes that represent the plurality of component parameters, and a plurality of dependencies between the root node and the plurality of leaf nodes that represent the influences that the plurality of component parameters have on the service parameter.

53. (**Currently Amended**) The system of claim 58, wherein the function includes one or more arguments that define scheduled unavailability for at least one of the more than one network devices in the subset of the plurality of network devices.

54. (**Previously Presented**) The system of claim 40, wherein the identified function includes a fuzzy logic algorithm that comprises:

translating the monitored values for the subset of the plurality of component parameters into fuzzy concepts;

determining numeric grades of membership that the monitored values have in the fuzzy concepts; and

inferring the value for the service parameter from the numeric grades of membership that the monitored values have in the fuzzy concepts.

55. (**Currently Amended**) The method of claim 1, wherein the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter are representative of the plurality of component parameters that measure the performances of the plurality of network components that support the service.

56. (**Currently Amended**) The method of claim 55, wherein the subset of the plurality of component parameters measure the performances of a subset of the plurality of network components that support the service, and wherein the subset of the plurality of network components includes more than one of the plurality of network components, whereby the performance of the service depends upon performances of the subset of the plurality of network components.

57. (**Currently Amended**) The system of claim 40, wherein the subset of the plurality of component parameters that have the ~~greatest~~ most influence on the service parameter are representative of the plurality of component parameters that measure the performances of the plurality of network devices that support the service.

58. (**Currently Amended**) The system of claim 57, wherein the subset of the plurality of component parameters measure the performances of a subset of the plurality of network devices that support the service, and wherein the subset of the plurality of network devices includes more than one of the plurality of network devices, whereby the performance of the service depends upon performances of the more than one network devices in the subset of the plurality of network devices.

59. (**New**) The method of claim 1, wherein the network includes multiple domains, and wherein the plurality of network components support the service across the multiple domains.

60. (**New**) The method of claim 59, wherein mapping the plurality of component parameters to the service parameter includes:

receiving multiple intra-domain alarms at an alarm correlation agent, wherein one or more monitoring agents generate the multiple intra-domain alarms across the multiple domains from the plurality of component parameters that measure the performances of the plurality of network components that support the service across the multiple domains; and

correlating the multiple intra-domain alarms generated across the multiple domains, wherein the alarm correlation agent correlates the multiple intra-domain alarms to generate one or more inter-domain alarms across the multiple domains and map the one or more inter-domain alarms to the service parameter.

61. (**New**) The method of claim 59, wherein the more than one component parameters having the most influence on the service parameter measure the performances of more than one of the plurality of network components that support the service across the multiple domains, and wherein the more than one of the plurality of network components are located in different ones of the multiple domains.

62. (**New**) The system of claim 40, wherein the network includes multiple domains, and wherein the plurality of network devices support the service across the multiple domains.

63. (**New**) The system of claim 62, further comprising an alarm correlation agent that executes on the one or more electronic devices to map the plurality of component parameters to the service parameter, the alarm correlation agent configured to:

receive multiple intra-domain alarms from one or more monitoring agents, wherein the one or more monitoring agents generate the multiple intra-domain alarms across the multiple domains from the plurality of component parameters that measure the performances of the plurality of network devices that support the service across the multiple domains; and

correlate the multiple intra-domain alarms generated across the multiple domains to generate one or more inter-domain alarms across the multiple domains, wherein the alarm correlation agent maps the one or more inter-domain alarms to the service parameter.

64. (**New**) The system of claim 62, wherein the more than one component parameters having the most influence on the service parameter measure the performances of more than one of the plurality of network devices that support the service across the multiple domains, and wherein the more than one of the plurality of network devices are located in different ones of the multiple domains.